

### **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently amended) A method, comprising:

displaying a graphical user interface that allows a user to select, from a representation of a network that is presented on a graphical user interface, a first connection endpoint that is associated with a first access node of the network and a second connection endpoint that is associated with a second access node of the network;

executing a routing algorithm to determine a path through the network amongst a plurality of possible paths through the network, the path and the possible paths each connecting the first connection endpoint and the second connection endpoint, the executing comprising:

assigning respective weights to links and nodes within the network;

changing the weights according to availability of resources;

determining that the path has the lowest combined weight from the first connection endpoint to the second connection endpoint; and,

provisioning a connection within the network that corresponds to the path, the provisioning comprising updating information held within a node that resides within the network and that resides along the path.

2. (Previously presented) The method of claim 1 wherein the executing a routing algorithm further comprises executing a distributed routing algorithm within nodes of the network.
3. (Previously presented) The method of claim 2 wherein the executing a distributed routing algorithm further comprises sending topology information from a first node to a second node within the network.
4. (Previously presented) The method of claim 2 wherein the executing a distributed routing algorithm further comprises sending bandwidth resource information from a first node to a second node within the network.
5. (Previously presented) The method of claim 2 wherein the executing a distributed routing algorithm further comprises sending Quality of Service (QoS) information from a first node to a second node within the network.
6. (Previously presented) The method of claim 1 wherein the executing a routing algorithm further comprises executing the routing algorithm at a network control management system that is coupled to the network.
7. (Previously presented) The method of claim 1 wherein the graphical user interface allows the user to choose a bandwidth for the connection.

8. (Previously presented) The method of claim 7 wherein the graphical user interface allows the user to choose at least one Quality of Service (QoS) parameter for the connection.

9. (Previously presented) The method of claim 8 wherein the at least one QoS parameter further comprises end-to-end transit delay for the connection.

10. (Previously presented) The method of claim 8 wherein the at least one QoS parameter further comprises jitter.

11. (Currently amended) A machine readable medium having instructions stored thereon that when executed by one or more processors cause the one or more processors to perform a method, the method comprising[,]:

displaying a graphical user interface that allows a user to select, from a representation of a network that is displayed on the graphical user interface, a first connection endpoint that is associated with a first access node of the network and a second connection endpoint that is associated with a second access node of the network; and,

causing a routing algorithm to be executed and a connection to be provisioned, the routing algorithm being executed to determine a path through the network amongst a plurality of possible paths through the network, the path and the possible paths each connecting the first connection endpoint and the second connection endpoint, the connection being provisioned within the network

by updating information within a node that resides within the network and that resides along the path, the connection corresponding to the path, the executing comprising:

assigning respective weights to links and nodes within the network;

changing the weights according to availability of resources;

determining that the path has the lowest combined weight from the first connection endpoint to the second connection endpoint.

12. (Previously presented) The machine readable medium of claim 11 wherein the routing algorithm is a distributed routing algorithm.

13. (Previously presented) The machine readable medium of claim 12 wherein the distributed routing algorithm is designed to send topology information from a first node to a second node within the network.

14. (Previously presented) The machine readable medium of claim 12 wherein the distributed routing algorithm is designed to send bandwidth resource information from a first node to a second node within the network.

15. (Previously presented) The machine readable medium of claim 12 wherein the distributed routing algorithm is designed to send Quality of Service (Qos) information from a first node to a second node within the network.

16. (Previously presented) The machine readable medium of claim 11 further comprising instructions which when executed cause the one or more processors to execute the routing algorithm at a network control management system coupled to the network.

17. (Previously presented) The machine readable medium of claim 11 wherein the graphical user interface allows the user to choose a bandwidth for the connection.

18. (Previously presented) The machine readable medium of claim 17 wherein the graphical user interface allows the user to choose at least one Quality of Service (QoS) parameter for the connection.

19. (Previously presented) The machine readable medium of claim 18 wherein the at least one QOS parameter further comprises end-to-end transit delay for the connection.

20. (Previously presented) The machine readable medium of claim 18 wherein the at least one QoS parameter further comprises jitter.

21. (New) A method, comprising:

displaying a graphical user interface that allows a user to select, from a representation of a packet network that is presented on a graphical user interface, a first connection endpoint that is associated with a first access node of the network

and a second connection endpoint that is associated with a second access node of the network;

executing a routing algorithm to determine a path through the network amongst a plurality of possible paths through the network, the path and the possible paths each connecting the first connection endpoint and the second connection endpoint; and,

provisioning a connection within the network that corresponds to the path, the provisioning comprising updating information held within a node that resides within the network and that resides along the path.

22. (New) The method of claim 1 wherein the executing comprising:
- assigning respective weights to links and nodes within the network;
  - changing the weights according to availability of resources; and
  - determining that the path has the lowest combined weight from the first connection endpoint to the second connection endpoint.